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FOSSILS AND LIFE[1]

THE DIFFERENTIA OF PALEONTOLOGY

LIKE botany and zoology, paleontology describes the external and internal form and structure of animals and plants; and on this description it bases, first, a systematic classification of its material; secondly, those broader inductions of comparative anatomy which constitute morphology, or the science of form. Arising out of these studies are the questions of relation—real or apparent kinship, lines of descent, the how and the why of evolution—the answers to which reflect their light back on our morphological and classificatory systems. By a different approach we map the geological distribution of genera and species, thus helping to elucidate changes of land and sea, and so barring out one hypothesis of racial descent or unlocking the door to another. Again, we study collective faunas and floras, unravelling the interplay of their component animals and plants, or inferring from each assemblage the climatic and other physical agents that favored, selected, and delimited it.

All this, it may be said, is nothing more than the botany and zoology of the past. True, the general absence of any soft tissues, and the obscured or fragmentary condition of those harder parts which alone are preserved, make the studies of the paleontologist more difficult, and drive him to special methods. But the result is less complete: in short, an inferior and unattractive branch of biology. Let us relegate it to Section C!

Certainly the relation of paleontology to geology is obvious. It is a part of that general history of the earth which is geology. And it is an essential part even of physical geology, for without life not merely would our series of strata have lacked the coal measures, the

[1] From the address of the president of the Geological Section of the British Association for the Advancement of Science, Cardiff, 1920.